



Conserve O Gram

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First Aid For Wet-Site Objects

Objects brought up from wet sites, such as bodies of water and damp soil, *must be kept wet* until full preservation treatment is possible.

This advice is both a warning and a prescription. Park staff planning excavations in wet sites should plan ahead for proper preservation of recovered objects, especially if a conservator cannot be on site. By following these guidelines, the basis for successful future treatment will be established.

This advice will also be relevant in those situations that arise from time to time where objects are recovered accidentally or incidentally. Park staff will need to act quickly to ensure that irreversible harm does not come to the recovered wet or damp object.

The idea of *first aid* is intended to convey a sense of urgency and of *first things done*. The idea of keeping *everything* wet pending full treatment is an oversimplification, but following this advice will reduce the harm done to objects.

For emergency treatment of objects which have become wet for only a short time, such as from a flood or broken pipe, see the NPS *Museum Handbook*, Part I, Chapter 8, Section F.

Metal Objects Recovered From Salt Water

Metal objects recovered from salt water sites can be kept in sea water initially, if no fresh water is available. Keep the objects wet at all times. They should not be allowed to dry. If objects are dried out before treatment, especially those made from iron, the metal can corrode, pieces can flake off, and salt contamination can become difficult to remove. Spray the objects with sea

water, or wrap them in damp rags until they can be placed in a tank.

Objects made from non-ferrous metals, such as copper, brass, silver or gold, *may* be less affected by air drying without further treatment, although only through experience and testing can one be reasonably confident of success. When in doubt, keep them wet.

If preservation treatment will be delayed for several weeks or months, metal objects recovered from the sea should be stored completely submerged in tap water into which has been mixed enough sodium hydroxide or sodium carbonate to make a strongly alkaline solution in the range of pH 11 to 12. This can be achieved with a 2% sodium hydroxide solution or a 5% sodium carbonate solution. (See *Conserve O Gram* 6/4.) Take appropriate safety precautions when handling the caustic powders: wear a dust mask, eye protection, and rubber gloves. The solution should be changed monthly. The tank should be covered.

Metal Objects Recovered From Fresh Water

Metal objects, with no attached wooden parts, which have been recovered from fresh water sites can often be air-dried soon after recovery. Brush off loose mud, soil, or corrosion under running fresh water. Use a fine stainless steel brush on iron, or a fine brass brush on copper or brass. Use a toothbrush-style fiber brush on silver or gold, or on metal with bone attachments. Objects with iron components may undergo *flash* rusting unless de-watered with a corrosion-inhibiting flushing compound such as CRC 3-36®. This compound is generally

available in hardware stores in 12-oz. spray cans. Drench the object in the fluid, letting it drip while carrying off the water, then set the object aside to air dry. Do not use the compound if the iron is attached to bone, wood, or other non-metallic material.

If mild flash rusting is tolerable, objects can be almost completely dehydrated before air drying by passing them through a succession of baths of an ethanol/water mix, followed by a final bath in acetone (extremely flammable). Some conservators leave objects in each bath for a day or two, while others who need more speed will merely pass the objects rapidly through with an hour in each bath. Start with an alcohol-to-water mix of 3 parts water to 1 part alcohol. The second bath may be 1 to 1 alcohol:water; the third bath 3 to 1 alcohol:water; and the final bath 100% acetone.

Wooden Objects

Objects made of wood, or which have wood components, must be kept wet, out of the sun, and in a cool place. If wood dries too fast, the surface can crack, check, or shrink, the object can warp, and, if the wood is degraded, the object can lose shape and collapse. Keep the wood wet by hosing it down gently and often, wrapping it in clean damp rags or polyethylene, or keeping it in a tank in clean fresh water. If it is very warm, or if it will be more than a week before the wood can reach a laboratory, spray it with a solution of boric acid and borax. (Make 1% solutions in water of each, then mix the two 1% solutions in a 7 to 3 ratio, boric acid:borax, to make the final solution to spray.) Wet wood can be very fragile; when handling, support it fully. Unfortunately, ferrous metal components will continue to corrode throughout this process.

Leather Objects

Leather recovered from wet sites also needs to be kept wet or damp, out of the sun, and in a

cool place, until it is taken to a conservator. Wet leather objects are fragile; support them fully when handling. For longer-term storage, keep the artifacts refrigerated at 4.4°C (40°F) or lower, but above freezing.

Textiles

Wet textiles are likely to be extremely fragile; handle them carefully and support them fully. Keep textiles damp, out of the sun, and in a cool place. For longer-term storage, keep them refrigerated at 4.4°C (40°F) or lower, but above freezing.

Ceramics, Glass, and Bone

Samples of the various types of wet ceramics, glass, and bone should be air dried to see if there are any problems before attempting to dry a larger batch. Check ceramics and glass for flaking decorative surfaces or the sudden appearance of crusty areas (usually salt migrating to the surface). Check bone for flaky or spongy surfaces, or for fragmentation. When in doubt, keep them wet.

References

Lawson, Eric. "In Between: The Care of Artifacts from the Seabed to the Conservation Laboratory and Some Reasons Why It Is Necessary," *Beneath The Waters Of Time: The Proceedings of the Ninth Conference on Underwater Archeology*. Texas Antiquities Committee Publication Number 6, 1978.

Sease, Catherine. *A Conservation Manual for the Field Archaeologist*. Institute of Archaeology, University of California, Los Angeles, Archaeological Research Tools, Vol. 4. 1987.

Singley, Katherine. *The Conservation of Archaeological Artifacts from Freshwater Environments*. Lake Michigan Maritime Museum, South Haven, 1988.

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